

EMA'S ENGINEERING TODAY

Providing Solutions that Deliver Results

DECEMBER 2009

*Information and Helpful Hints
For School Districts and the
Architects who serve them.*

IN THIS ISSUE

- Florescents Surpass HID Lights in Energy Savings
- Five Points To Help With New Or Renovated Construction
- Elementary School Honors Ed Cliver's Aunt
- EMA Entertains Future Engineers
- Carden and EMA Team Together to Reduce Energy Costs
- Test Your Knowledge
- Company Spotlight



**Estes, McClure
& Associates, Inc.**
Engineering and Consulting

Fluorescents Surpass HID Lights in Energy Savings

For the past several decades HID lighting has been the standard for illuminating gyms. Initially it was mercury vapor, and then metal halide became the lamp of choice. Recently high bay fluorescent fixtures with T-5 HO (high output) lamps have been replacing HID lighting in gyms.

Fluorescent fixtures offer several advantages over metal halide, the first of which is energy savings. A 6-lamp T-5 HO fixture uses approximately 100 watts less than its 400-watt metal halide equivalent. 4-lamp models that can be used in elementary gyms, for example, where lower light levels are needed save about 225 watts per fixture.

Fluorescents also offer several other advantages. Unlike HID lighting they can be switched on and off as needed, since there is no warm-up period. This capability encourages athletic staff and other users to turn lights off when they are not needed, enhancing energy savings. Motion sensors can be used to automatically turn lights off during unoccupied periods, which further reduces energy use. Multiple level switching



*Gym lighting before
fluorescents.*

*Gym lighting after
fluorescents.*

allows for varying light intensities. Lower levels that can be used for P.E. classes, for example, use less energy.

Fluorescent high bay lighting creates a pleasant indoor environment. Illumination tends to be glare free and even across the floor, with no hot and dark spots. The ballast hum sometimes associated with HID lighting is virtually eliminated.

Fluorescent high bay fixtures with T-5 HO lamps are a feasible alternative to HID lighting. Besides energy savings, they offer better control and a visually pleasing environment.

Five Points To Help With New Or Renovated Construction

Proper design of building systems requires coordination between the architect and engineer. The following are some points to keep in mind when laying out architectural features of new or renovated buildings.

1. Designing plumbing chases with structural footings below chase walls makes design and installation of plumbing piping difficult.
2. Locating restrooms, break rooms, kitchens, and other rooms with plumbing fixtures, above electrical or MDF/IDF rooms in

multistory buildings causes conflicts between piping and electrical and networking equipment.

3. High ceilings can force cut off valves to be located in places that are difficult for maintenance personnel to access.
4. Placing roof drains around a building perimeter reduces roof drain piping conflicts with HVAC ductwork.
5. Renovations of existing buildings require that chase walls be provided for any new plumbing fixture locations.

Merry Christmas and Happy New Year!



New Elementary School Honors Ed Cliver's Aunt

EMA's Senior Vice President Ed Cliver's aunt, Evelyn Turlington was honored recently by the Waller ISD. The district named its newest elementary school in honor of Mrs. Turlington. She has been a teacher in the district for more than 52 years. Waller ISD is located near Houston.

Ed Cliver and Evelyn Turlington



ENGINEERING

Air conditioning
Communications
Controls
Electrical
Energy
Lighting
Mechanical
Plumbing
Technology

CONSULTING

Communications
Emergency power
Energy
Fire/Safety
Lighting
Master planning
Media
Research studies
Sustainability
Security
Technology
Workshops/Training

SCHOOL EXPERIENCE

35 years service
585 Texas ISDs
47 colleges and universities
Other schools throughout the country



CONTACT US

Estes, McClure & Associates, Inc.
Engineering & Consulting
3608 West Way
Tyler, Texas 75703
903.581.2677
www.estesmcclure.com

©December 2009

EMA Entertains Future Engineers

Three eager elementary students visited the EMA offices early this fall. Will Hill, EMA Project Manager, provided insight into engineering and design for the students. Tommy Fenter, EMA Electrical Engineer, also caught their attention using his Master of Engineering diploma to discuss various degree opportunities in engineering.



Carden and EMA Team Together To Reduce Energy Costs

When EMA started working with Ken Carden, Whitesboro ISD energy manager, he was already implementing ways to decrease their energy bills. Carden coordinated with EMA to conduct an energy audit of the district's schools earlier this year. "Carden was energy conscious and he was eager to incorporate our recommendations," said James McClure, EMA CEO.

Carden has implemented several energy-saving measures since coming to the district about two years

ago. He began by replacing T-12 lighting with more efficient T-8 lamps and electronic ballasts. He also started utilizing air conditioning setback temperatures during unoccupied times and holiday periods. As a result the district reports a 19% decrease in electric use.



Ken Carden

Whitesboro ISD is a rural district located in north Texas with an enrollment of about 1600 students in four campuses.

Test Your Knowledge

- The earth is at its closest point to the sun on _____.
 - June 21
 - Sept. 21
 - Dec. 21
- The coldest temperature ever recorded in Texas was _____ °F in the town of Tulia.
 - 11
 - 23
 - 47
- In winter the effect of _____ has the greatest impact on the thermal comfort of a person seated near a window.
 - convection
 - radiation
 - infiltration
- Lowering a school's heating setpoint from 71°F to 70°F could potentially save about _____ % in annual energy costs?
 - 0.5
 - 1
 - 5

9 4 3 2 1

COMPANY SPOTLIGHT

Josh Gentry, P.E., LEEDAP Vice President, recently earned the Commissioning Process Management Professional Certification from ASHRAE. Also, congratulations to Josh and his wife Amy on the birth of their first child.

EMA engineers are scheduled to be a resource for Tyler ISD's Moore Middle School Future City Project.

EMA's Blue Jean Friday contributions were enough to provide 2200 meals through the local food bank in 2009.